

Is Latin America starting to retreat from early and universal childbearing?¹

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Abstract Latin America is quickly approaching fertility replacement levels. Although the pace of fertility decline has been uneven across countries, recent data show that more than half of the 20 Latin American countries had total fertility rates close to or below replacement levels by 2005. Until now, a distinctive feature of the process of fertility decline in Latin America was that it took place without major changes in the onset of family formation, as indicated by fairly stable rates and ages at first union and first birth. It seems, however, that Latin America has entered into a new stage of the fertility decline process in recent years. After decomposing childbearing into the contributions of (1) entry into motherhood and (2) children that mothers have, we detect a new fertility pattern in the region: the age-30 proportion of mothers, which had changed little in the past, has dropped substantially in Latin America in the 1990s, suggesting that the social imperative of early motherhood, which has long prevailed in the region, is weakening. The analysis is based on cohort estimates from the four waves of Latin American censuses between 1970 and 2000. In addition, surveys conducted in 14 Latin American countries in 2006 show a strong link between childlessness and higher education across several cohorts. We discuss whether the recent increase in childlessness reflects a shift towards later childbearing or whether it may signal an emerging retreat from universal childbearing in the region. In turn, the data show that the decline of fertility of mothers continues, although slowly.

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Introduction

Latin America is quickly approaching fertility replacement levels. Although the pace of fertility decline has been uneven across countries⁵ (Guzmán et al., 1996), recent data show that more than half of the 20 Latin American countries had total fertility rates (TFR) close to or below replacement levels by 2005 (Population Reference Bureau 2007). This group includes the four largest countries in the region: Brazil, Mexico, Colombia, and Argentina; as well as five countries with populations that have already crossed the replacement threshold (with TFR lower than 2.1): Uruguay, Chile, Costa Rica, Puerto Rico, and Cuba. Fertility patterns and trends at these low levels may be strongly determined by women's behavior in entering maternity; that is, by rates of first births and age schedules. If motherhood continues to be almost universal and early, it seems unlikely that the region will eventually reach the very low fertility levels observed in several European and East Asian countries (Kohler, Billari, and Ortega, 2002). Conversely, if larger proportions of Latin Americans opt to have their first child at older ages, or to remain childless, the region could reach very low fertility levels sooner rather than later.

Until now, a distinctive feature of the process of fertility decline in Latin America was that it took place without major changes in the onset of family formation, as indicated by fairly stable rates and ages at first union and first birth (Rosero-Bixby, 1996, 2004; Mensch, Singh, and Casterline, 2005). It seems, however, that Latin America has entered into a new stage of the fertility decline process in recent years. The proportion of women under 30 who have made the transition to motherhood has dropped significantly in most Latin American countries in the past decade. In Costa Rica, for example, the estimated proportion of women who would be mothers by age 30, according to the rates of the study year, fell from above 80% to about 65% from 1995 to 2005. Drawing on the European experience, this article discusses whether this reduction in rates of motherhood among young adults reflects a novel shift in the starting age of childbearing, an emerging retreat from universal childbearing, or a combination of both.

The study of childlessness among younger groups adds a complementary perspective to earlier research. Previous studies on childlessness in developing countries have been traditionally confined to the end of the reproductive span; i.e., among women in the oldest reproductive age groups, usually over age 40. Based

⁵ For example, Mexico and Brazil have experienced a rapid and sharp fertility transition over the last thirty years; Chile, Uruguay and Argentina already displayed a relatively low level of fertility in the 1970s and the reduction in fertility rates has been moderate thereafter. In Guatemala, Bolivia, Honduras, Paraguay and Nicaragua, fertility rates remain relatively high at present (United Nations, 2007).

on the assumption that the desire for children is practically universal in developing countries, childlessness has been typically attributed to involuntary infecundity. The comparison of data from the World Fertility Surveys and the Demographic and Health Surveys reveals that permanent childlessness has diminished in Latin America since the 1970s (United Nations, 2004). However, the proportion of childless women aged 25 to 49 has recently increased in several countries of the region (Rutstein, and Shah, 2004), suggesting that childbearing is intentionally postponed (or foregone) by an increasing proportion of young adults.

This article documents the levels and trends of childlessness among young adult women in 16 Latin American countries between 1970 and 2000 with data from four waves of population censuses. It also identifies factors that are associated with childlessness using individual-level data from a 2006 series of surveys conducted in 14 Latin American countries. The article focuses primarily on *cohort* fertility, given that it has been shown that *period* indicators of fertility may be distorted by what Ryder called “demographic translation” effects (Ryder, 1964), also known as *tempo* effects in more recent literature (Bongaarts, and Feeney, 1998). For example, while *period* total fertility rates are as low as 1.2 and 1.3 in several European countries, the lowest estimates of complete *cohort* fertility in those countries are in the order of 1.5 to 1.7 births among cohorts born circa 1970 (Sardon, 2006). The persistent postponement of births biases downwards the estimates of period fertility rates because there can be a recuperation of fertility at older ages. However, it is well documented that, in general, “later means fewer” children (Rindfuss, and Bumpass, 1976), or even no children.

The Latin American demographic context

Considering the far-reaching economic, social, and political transformations that Latin America experienced in the second half of the 20th century, it remains somewhat of a puzzle that demographic indicators of family formation, such as age at first union and age at first birth, have shown, until very recently, so little change (Heaton, Forste, and Otterstrom, 2002). During these past decades, major structural transformations affected the organization of society, particularly the expansion of mass education, rapid urbanization, and internal rural to urban migration, as well as the transition to democratic governments in the political domain. Women’s education and employment levels, which are known to influence family formation, also increased rapidly during this period. For example, the participation of women in the labor force increased from around 20% in the 1950s to over 50% in the 1990s, albeit with large differences according to country, area of residence, age and educational

level (ECLAC, 2007). The increase was particularly sharp after the debt crisis that affected the region in the 1980s, and the subsequent economic restructuring of the 1990s. The deterioration of the economy, increasing unemployment, and precarious attachment to the labour force rendered the traditional male breadwinner family model unsustainable (Jelin, and Díaz-Muñoz, 2003). Despite these trends, early life course transitions, such as the transition to first union and motherhood, changed remarkably little (Fussell, 2005).

Fertility in the Latin American region as a whole declined from 5.9 births per woman in 1950-1955 to 2.5 in 2000-2005 (United Nations, 2007). However, as mentioned above, this rapid and sustained process of fertility decline was not accompanied by a gradual delay in the onset of childbearing, as has been the norm in European countries (Sobotka, 2004). In the early 1990s, relatively low fertility coexisted with traditional patterns of family formation –i.e., early nuptiality and young motherhood– in many Latin American countries. Fussell and Palloni (2004) argue that the explanation for this distinct Latin American pattern⁶ lies in the strong cultural emphasis on family ties. According to these authors, the value placed on family networks, which represent the primary safety net guarding against economic and social instability, would explain the persistence of nearly universal and early family formation, despite major changes in the economic, political, and social spheres.

Traditional patterns are, however, not immutable, and it is reasonable to expect that behavior regarding motherhood will eventually change in the face of modernizing forces, such as women's education and salaried work, particularly when the average desired family size has declined to about two children in most Latin American countries (Westoff, and Bankole, 2002). Younger cohorts, particularly if they have had access to higher education, are likely to reach adulthood with different aspirations regarding marriage and family, work life, economic self-sufficiency, and lifestyle than their mothers and grandmothers, as has occurred in Western societies (Crimmins, Easterlin and, Saito 1991). Delaying childbearing could be a suitable strategy that allows them to pursue higher education, establish themselves in the labour market, build their couple relationship before child-rearing, and also to deal with unstable life conditions or uncertainty in the economic context (Adsera, and Menéndez, 2006).

⁶ Fertility patterns in Eastern Europe also reflect the atypical coexistence of very low fertility and early transition to childbearing, but an upward trend towards later motherhood has recently started (Council of Europe, 2005).

Data and methods

Drawing on the classic study of the decline of fertility in Europe that decomposed childbearing into marriage and marital fertility indexes (Coale, and Watkins, 1986), the starting point in this article is the following identity that decomposes total fertility F into two different processes:

1. the proportion of women who became mothers, or motherhood rate M , and
2. the fertility of mothers, or G rate, which is simply the additional number of children that mothers have:

$$F = M(G+1)$$

Our trend analysis is based on *cohort* estimates of F and M from the four waves of censuses conducted in 16 Latin American countries since 1970. The G rate is derived from the above identity. We focus on M at ages 25-29, which the data shows represents 87% (5% SD) of complete M in Latin America (cohorts in these data reach complete M by age 40). And we focus on G in the age bracket 30-34, which includes 80% (5% SD) of complete G in each cohort. In some analyses, we estimate complete M and G for cohorts born in the 1970s from the quasi-complete figures at ages 25-29 and 30-34, respectively, using relations derived from the data. The census data were taken from several sources, including the UN Demographic Yearbook, as well as online census data on the web from the IPUMS project (Minnesota Population Center, 2008), the University of Costa Rica (CCP, 2008), and the census offices in Colombia, Brazil, Chile, Mexico, Nicaragua, and Honduras.

This decomposition of fertility in M and G was used in an earlier study of the prospects of below-replacement fertility in 15 metropolitan areas of Latin America (Rosero-Bixby, 2004). For comparison purposes, we also use the most recent estimates of cohorts M and G for 22 European countries, which correspond to the cohorts born circa 1970. The lowest estimates of cohort total fertility in this group of European countries are in the order of 1.5 to 1.7 births. The estimates come from the European Demographic Observatory (Sardon, 2006), and the countries are: Austria, Bulgaria, Croatia, Czech Republic, Denmark, England and Wales, Finland, Greece, Hungary, Ireland, Latvia, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, and Sweden (countries with no available estimates for 1970s cohorts were not considered). In addition, we use published cohort estimates of completed- M and M at age 27 for five cohorts in 23 developed countries (Frejka, and Sardon, 2007) to identify an intra-cohort relationship between these two figures, which we then use to estimate a scenario of completed- M in the 1970s birth cohorts in Latin America.

In order to examine in more detail recent trends in motherhood rates, we use vital statistics data on first births in Chile and Costa Rica in the period 1980-2006. These are the only countries in the region with accessible and reliable series of numbers of births by birth order. We estimate the time series of *period-M* at age 30 (sum of age specific first birth rates), as well as the *period* median age at motherhood (i.e., when 50% of women reach motherhood) in these two countries.

In complementary analyses of factors associated with childlessness, we use micro-data from surveys conducted in 14 Latin American countries in 2006 as part of the Latin American Public Opinion Project (LAPOP, 2008) of the “Americas Barometer” of the Vanderbilt University⁷. These are nationally representative surveys of adult women and men aged 18 and over, with a sample size of around 1,500 in each country. The questions mainly focus on political themes, such as voting participation, tolerance, and support of democracy, and citizens’ rights. However, by including questions on the number of children and socioeconomic status, these surveys offer a rare opportunity for comparing the co-factors of the prevalence of childlessness in several cohorts and across 14 Latin American countries. Using logistic regression, this article estimates cross-sectional effects on the probability of being childless, contrasting results across three age or cohort groups (women aged 20-29, 30-39, and 40-49 in 2006). The covariates included in the model are: urban residence, educational level, occupation, household wealth (a zero to one scale built by counting up to 11 household assets), religion and religiosity, trust in neighbors (an indicator of social capital measured with a zero to one scale), satisfaction with life (an indicator of self- perceived wellbeing measured with a zero to one scale), and sources of news, since some authors postulate an important role of television (*telenovelas*, in particular) for the diffusion of modern lifestyles and family values in Latin America (Potter, Schmertmann, and Cavenaghi, 2002). Age and marital status are included as controls, and interactions between age and several covariates are also explored.

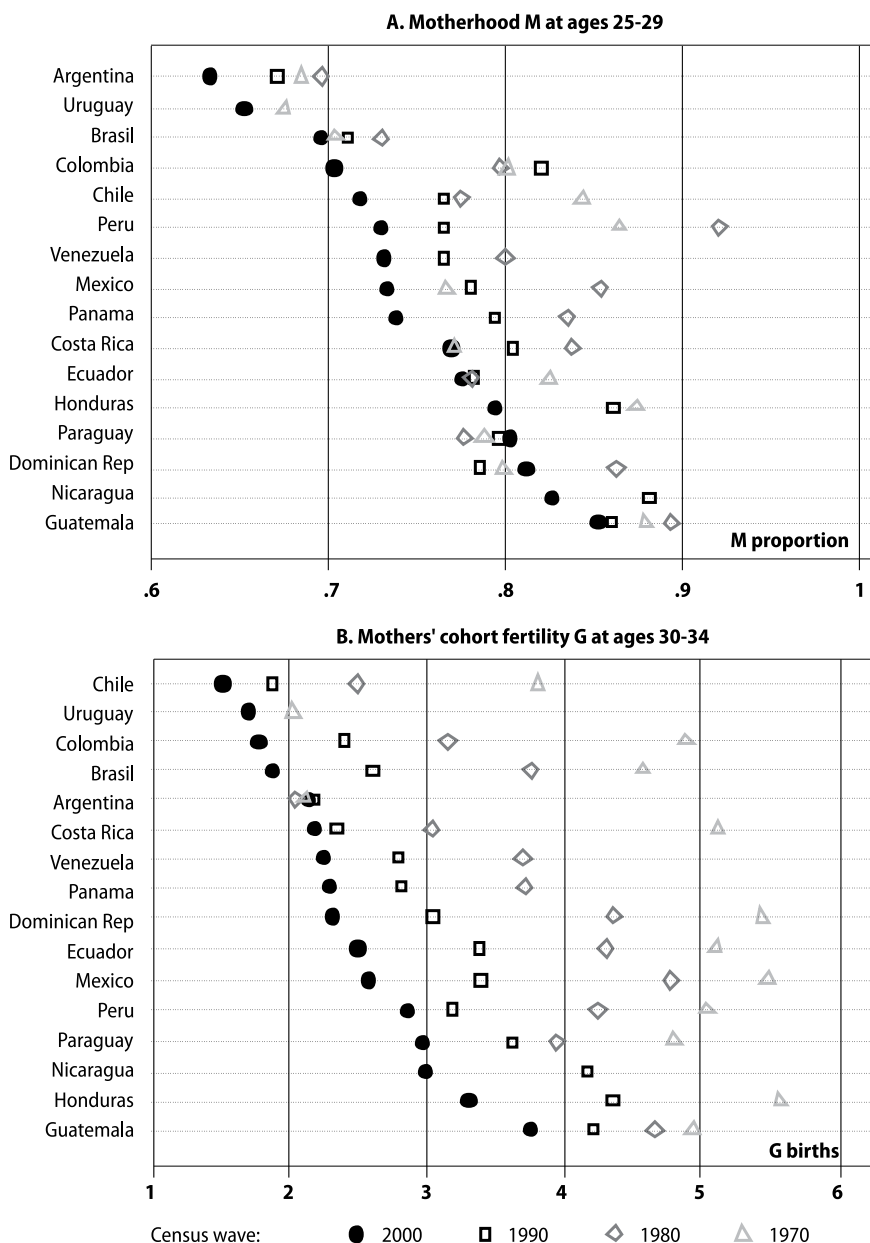
Results

Figure 1 (Part B) shows the remarkable drop in the *G* rate or fertility of mothers from cohorts aged 30 to 34 in the 1970 wave of censuses (born around 1940), to analogous

⁷ The countries are Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Bolivia, Peru, Paraguay, Chile, and the Dominican Republic.

cohorts in the 2000 censuses born around 1970. At these ages, about 80% of the final G fertility of the cohort is usually completed in Latin America. The oldest cohorts were at

Figure 1. M proportion and G rate in Latin American countries over four census waves, 1970-2000



their peak reproductive ages in the 1960s, and the youngest cohorts reached these ages in the 1990s. Most countries went from a G rate of four or five children to a rate of around two children in these 30 years. The exceptions are, on the one hand, Argentina and Uruguay, which already had G rates of about two births from 1970 onwards; and, on the other hand, Honduras and Guatemala, the only countries with G rates higher than three births in 2000.

Trends are different in the proportion M of motherhood in the 25-29 age bracket (Figure 1, Part A), when close to 90% of the final cohort- M is usually completed in Latin America. First, there is no clear pattern of change from 1970 to 1990. In some countries, such as Chile and Peru, there are declines of about 10 percentage points in M , whereas in most countries, including the four regional giants, Brazil, Mexico, Argentina and Colombia, the M change from 1970 to 1990 is only about two percentage points in any direction. In contrast, between the last two waves of censuses, from 1990 to 2000, there is a clear drop in M in almost all countries. With the exceptions of the Dominican Republic and Paraguay, the M proportion reached its historic low in the 2000 wave of censuses.

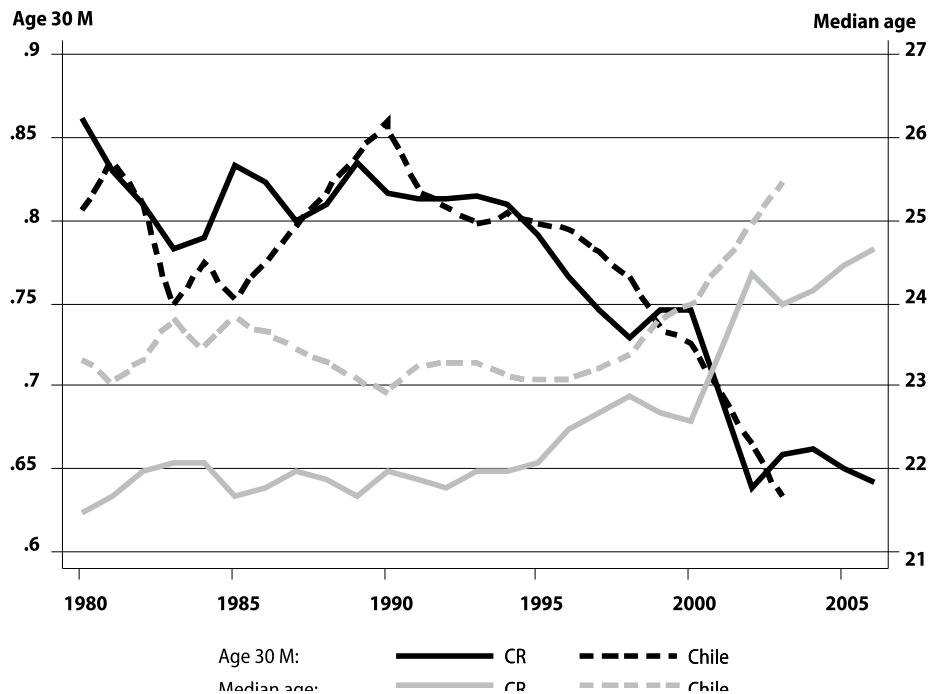
Period indicators of M illustrate these trends more sharply. Figure 2 shows the evolution over time in the *period-M* at age 30 and the *period* median age of entry into motherhood in Chile and Costa Rica, the only Latin American countries with readily available series that are sufficiently long. Three points emerge from Figure 2:

1. there are no clear trends before 1990;
2. starting in about 1990, there is a clear increase of almost three years in the median age at first birth over a period of about 10 years; and
3. there is a sharp drop of almost 20 percentage points in M in the decade of 1990.

The M proportion of mothers is below 65% at the end of the series. Considering that, in the past, no more than 10% of women entered motherhood after age 30, this might imply that as many as one in four women could end her reproductive life childless. This is, however, a naïve interpretation of a *period-M* that may be down-biased by the shift in *tempo* of first birth. It is plausible that women will enter motherhood after age 30 in significantly higher proportions than in the past if recent changes are driven mostly by a temporal postponement of the first birth.

Returning to the census-based cohort estimates of G and M , in order to include younger cohorts (born in the 1970s) in trend analyses, we completed the final 10 years of the G rate for cohorts born around 1970 (observed until about age 32), as well as the

Figure 2. Trend in motherhood proportion at age 30 and median age at motherhood. Period rates in Costa Rica and Chile, 1980-2005



final 10 years of the M proportion for women born around 1975 (observed until about age 27 in the 2000 wave of censuses). To complete the cohort G rate, we estimated a simple regression model with G in the same cohort 10 years earlier as the predictor variable, using fixed effects estimates in the panel of 16 Latin American countries. The resulting equation for a cohort c was (standard errors in parentheses):

$$G_{40-44}^c = 0.335 + 1.145 \times G_{30-34}^c$$

(0.20) (0.07) $R^2 = 0.92$

To complete M , we followed the same procedure as Frejka and Sardon (2007), and assumed that the rate in the coming 10 years would be the same as in the previous 10-year period in the same country and ages. However, this assumption corresponds to a traditional scenario in which very low proportions of women commence childbearing in their thirties, which had been the pattern until recently. It is quite plausible that women in younger cohorts who did not start childbearing in their twenties will do so in their thirties, resulting in substantially higher rates of late transition to motherhood similar to those seen in Europe. We thus assumed, as an alternative scenario, that young Latin American cohorts will display the same behavior as their European counterparts. Based on this assumption, we completed

the M proportion with a relationship derived from the panel data for 23 countries and five cohorts in the Frejka and Sardon (2007) article, Tables 1 and 3. The resulting European equation, estimated with a fixed effect regression model in the logits, for a cohort c was⁸:

$$\text{logit}(M_{final}^c) = -0.426 + 3.953 \times M_{27}^c$$

(0.69) (0.97) $R^2 = 0.55$

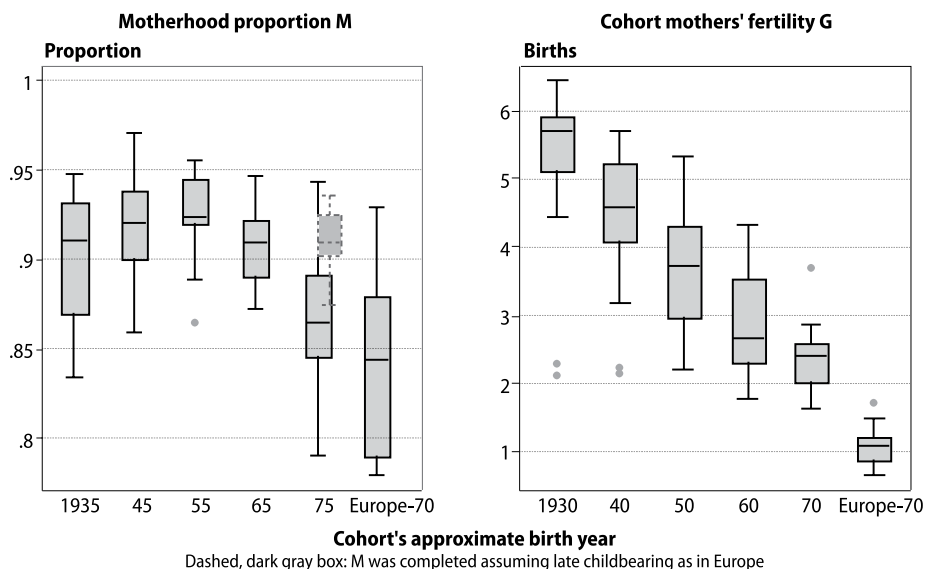
Figure 3 shows the box plots⁹ for complete G and M in the 16 Latin American countries and in each of the four census waves, plus our prediction for the wave of 2010 (two scenarios for M). These are cohort estimates of quasi-complete G and M , which will be observed in the census wave of 2010 for the 1970 cohorts. The figure also includes boxes of G and M for 22 European countries, with available estimates for cohorts born around 1970. It also shows the M box in the hypothetical scenario that the 1975 cohort would complete M with high rates of late motherhood, like in Europe. Overall, this figure confirms the precipitous decline in G from cohorts born around 1930 (median of 5.7 births) to those born around 1960 (median of 2.6 births). This decline has somehow stalled for the cohorts born about 1970 (median 2.3 births) at a level well above the European median of about one birth per mother in the 1970 cohorts.

For the complete M proportion –the main focus in this article–no clear trend can be seen when we move from the 1935 cohorts to the 1965 cohorts. The median M hovers above 90% motherhood, although in the 1965 cohorts there are signs that a decline has started. In contrast, the cohorts born by 1975 seem to be heading towards lower M (median of 86%), close to the M level in the European cohorts of 1970 (median of 83%). However, as indicated by the dashed box in the figure, if the 1975 cohorts have been simply delaying the onset of childbearing, and can be expected to have their first birth in their thirties, as in Europe, complete- M (median of 91%) will change little, and will stay above 90% median value. In this scenario, the only change will therefore be in the age at first birth. Reality may follow a path between these two scenarios, with a median M between 86% and 91%. Colombia is an extreme case, showing large differences between the two scenarios. Only 70% of women aged 25-29 were mothers in the 2005 census (our 1975 birth cohort), compared to 82% of the 1965 cohort in the

⁸ Since the R-squared of 0.55 in the prediction equation is less than optimal for forecasting purposes, we consider this as just an alternative scenario.

⁹ The line in the middle of the box indicates the median value of the distribution; the extremes of the box indicate the 25 and 75 percentiles.

Figure 3. Trend in the approximately final *G* and *M* in five cohorts of 16 Latin American countries and in the 1970 cohort of 22 European countries



1993 census. Our estimates of the completed *M* for the 1975 cohort range from 77%, if we assume the continuation of the 1965 cohort first birth rates, to 90%, if we assume the adoption of first birth patterns similar to those of Europe.

To what extent are *M* and *G* related to each other? Is fertility of second and higher order births influenced by the rate of entrance into motherhood? Lower *M* usually means later age at first birth and a reduced exposure time for having second and higher order births. This exposure effect would be strong in a natural fertility setting. But even under perfectly controlled fertility conditions, later may mean fewer births, particularly for the tail of the age distribution of women who start childbearing by age 40. However, if a lower *M* comes from a retreat from reproduction by large numbers of couples, further fertility of those who choose to have children may or may not be lower than in the previous situation, in which women with low fertility desires were part of the pool of mothers. If there is a general reduction in fertility preferences, a reduced *M* will go hand-in-hand with a reduced *G*. If, however, in some societies there is a divide between couples who opt out of parenthood and couples more oriented towards family and children, we will not observe an association between *G* and *M*, or the association may even be inverse.

Figure 4 shows the cross-sectional associations between the national levels of *M* and *G* in five successive Latin American cohorts and a recent European cohort. It is clear from the figure that the association between these two fertility components

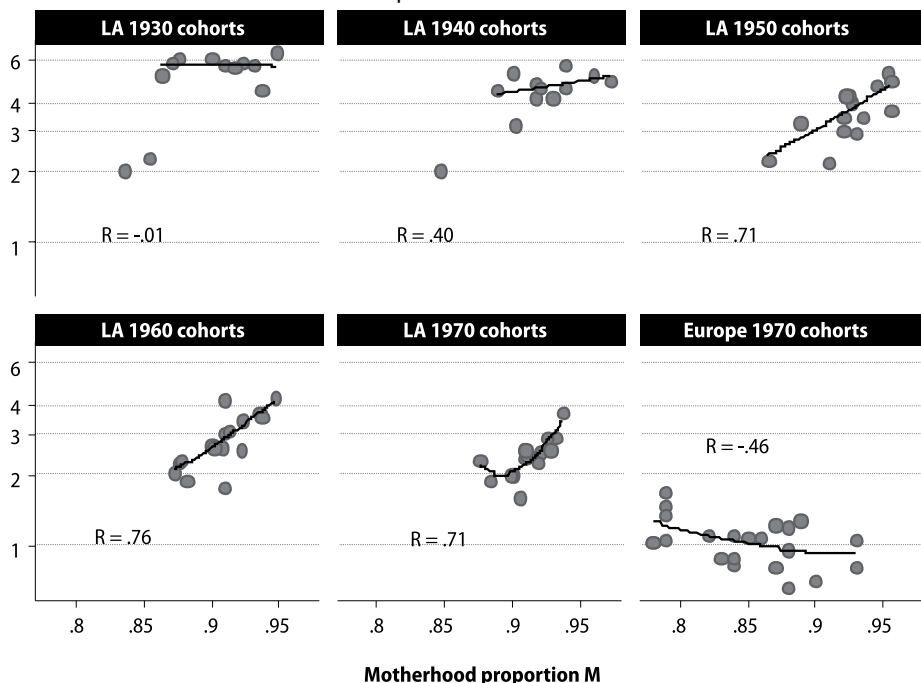
has changed over time. If we exclude the outliers Argentina and Uruguay from cohorts born in the 1930s and 1940s, there is almost no association between G and M in these cohorts. A positive and clear association takes shape in more recent generations of women, particularly in the 1950s and 1960s cohorts. However, the association weakens in the 1970s cohorts¹⁰. Moreover, an inverse relationship can be observed in the 1970s European cohorts: in societies with a lower proportion of women who are mothers, the fertility of mothers tends to be higher. This inverse association seems peculiar at first. However, it may simply mean that when M falls below a certain threshold, those women with lower fertility preferences are removed from the pool of mothers; that is, women who would have one child at most may be the ones who opt out of motherhood, leaving a self-selected group of women with higher fertility preferences in the pool of mothers, which, consequently, results in a higher G -rate.

What factors increase the likelihood of being childless (even if only temporarily) among young adults? Do these factors act differently than in earlier cohorts? Table 1 shows the results of a multivariate analysis on the probability of being childless among the 9,000 respondents of the LAPOP surveys of the Americas Barometer 2006. We present separate models for all women aged 20–49, and for each of the 10-year age brackets; i.e., for 10-year cohorts with central birth years at 1980, 1970, and 1960. All models include controls for age and country.

As expected, there is a clear and positive effect of education on childlessness (Castro-Martín, and Juárez, 1995). College-educated women are about four times more likely to be childless than women with no education or incomplete elementary school. This effect does not differ much in young and old cohorts. Working women, in turn, are twice as likely as housewives to be childless, but this effect is present and significant only in younger cohorts. However, the direction of causality in this relationship cannot be determined from the available data; i.e., we cannot tell whether women are childless because they are in the labor force, or whether they are more likely to be in the labor force because they are childless. Women who get the news mostly from newspapers are more likely to be childless, whereas the opposite occurs among women who get the news mostly from TV. The model does not show clear effects on childlessness based on residence in urban or metropolitan areas once we control for education, or from the indicators of social capital in the community (measured by the trust scale). Contrary to

¹⁰ The scatter graph for the 1970 cohort M that was predicted with the European relationship differs little from the one shown in Figure 4. The correlation coefficient is 0.70, compared to 0.71 in Figure 4.

Figure 4. Cross-sectional relationships between G and M. Latin American (LA) countries cohorts 1930-1970 and Europe cohort 1970



Note: The two outliers in 1930 are Argentina and Uruguay; the outlier in 1940 is Argentina. R is the correlation coefficient (excluding the outliers).

the popular view that religious affiliation and church attendance have a strong influence on women's fertility behavior in Latin America, our data show no effect of these factors on childlessness.

The effects on childlessness of the scales of wealth and satisfaction with life deserve a closer look. The odds ratios show that the direction of these effects reversed in younger cohorts. This change of direction is statistically significant, as shown by the interaction effects included in the all ages model. The findings indicate that women who are wealthier or more satisfied with life are less likely to be childless in older cohorts, and are more likely to be childless in younger cohorts. Among younger women, going from zero to one on the wealth scale increases the odds of being childless almost threefold, whereas among older cohorts, it reduces the odds to about one-third. Regarding satisfaction with life, going from zero to one on the scale more than doubles the odds of being childless among younger women, and reduces the odds by 30% among older women. If these were truly *cohort* effects, as opposed to *age* effects, they would stand for a dramatic generational change: childlessness now seems linked to happiness and wealth, in contrast to the trends

Table 1. Logistic regressions on the probability of being childless.
LAPOP-2006 surveys, in 14 Latin American countries

Explanatory variables	Total		Age 20-29		Age 30-39		Age 40-49	
	Odds Ratio	P> z	Odds Ratio	P> z	Odds Ratio	P> z	Odds Ratio	P> z
(N)	(8,925)		(3,717)		(2,802)		(2,406)	
Marital status								
With no couple	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
Common law union	0.09	0.00	0.08	0.00	0.10	0.00	0.16	0.00
Married	0.07	0.00	0.09	0.00	0.05	0.00	0.11	0.00
Place of residence								
Metropolitan	0.89	0.29	0.77	0.07	1.15	0.58	1.22	0.50
Other Urban	0.80	0.07	0.77	0.09	1.13	0.66	0.59	0.16
Rural	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
Education								
Incomplete elementary	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
Completed elementary	1.44	0.04	1.24	0.36	1.66	0.17	1.82	0.12
High school	1.70	0.00	1.70	0.01	1.58	0.15	1.78	0.10
College	3.72	0.00	4.06	0.00	3.61	0.00	5.19	0.00
Occupation								
Housewife	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
White-collar / student	2.03	0.00	2.69	0.00	1.26	0.32	0.94	0.83
Blue-collar	1.48	0.00	1.71	0.00	1.11	0.63	1.37	0.21
Religion								
Catholic	1	Ref.	1.00	Ref.	1	Ref.	1	Ref.
No Catholic	1.08	0.45	1.21	0.13	0.74	0.20	1.17	0.55
No religion	1.03	0.83	1.26	0.25	0.79	0.51	0.55	0.34
Church attendance								
Weekly vs. less than weekly	1.09	0.30	1.11	0.33	0.82	0.28	1.28	0.27
Trust scale (0 - 1)	1.08	0.55	1.07	0.70	0.84	0.53	1.25	0.54
TV informed scale (0 - 1)	0.62	0.00	0.54	0.00	0.66	0.18	0.77	0.48
Paper informed scale (0 - 1)	1.42	0.01	1.37	0.06	1.47	0.16	1.43	0.29
Satisfied with life scale (0 - 1)	2.26	0.00	2.23	0.00	1.63	0.17	0.71	0.44
Wealth scale (0 - 1)	2.85	0.00	2.97	0.00	4.33	0.00	0.31	0.05
Age groups and interactions								
20-29	1	Ref.						
30-39	1.22	0.62						
40-49	9.43	0.00						
Life satisfaction and								
Age 30-39	0.58	0.17						
Age 40-49	0.35	0.02						
Wealth and								
Age 30-39	1.23	0.61						
Age 40-49	0.24	0.00						

Note: All regressions included controls for age (continuous) and country (13 dummy variables).

Source: LAPOP surveys project data online at <http://encuestas.ccp.ucr.ac.cr/Lapop.html>.

seen only a generation ago, in which childless women reported being less happy and less wealthy. Nevertheless, we should interpret these cross-sectional relationships with caution because of possible reverse causality and the confounding effects of age and cohort.

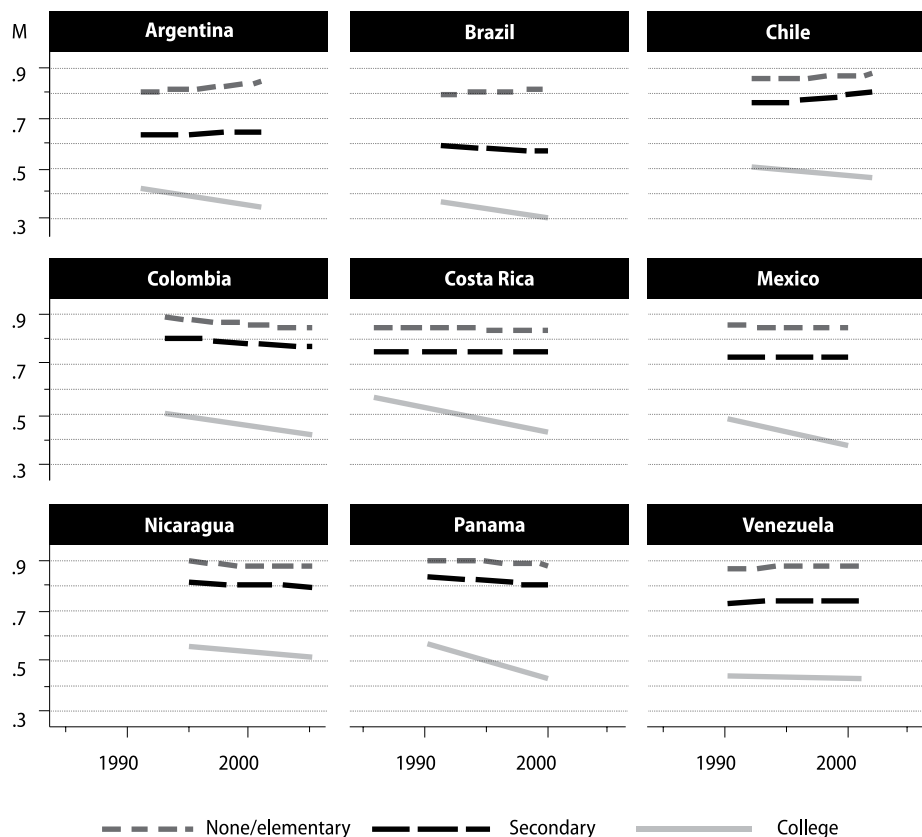
Figure 5 re-examines the robust effect of education on the motherhood proportion M among women aged 25-29 using data from the two most recent censuses in nine Latin American countries. The educational gap in M is large and persistent over time. Having a college education seems particularly important for two reasons: (1) the M gap for college is larger than for lower educational levels, and (2) college-educated women are the only group with a clear reduction in M over time in the nine countries. In Costa Rica, for example, only 43% of women aged 25-29 who attended college are mothers in the 2000 census, compared to 76% and 84% of women with high school and primary education, respectively. Moreover, in this country, the proportion of mothers among college-educated women fell 15 percentage points from the 1984 to the 2000 census, whereas the M proportion remained fairly stable in the other two educational groups. Among college-educated women, M dropped 14 percentage points in Panama, 11 points in Mexico, nine points in Colombia, seven points in Argentina and Brazil, five points in Nicaragua, and one point in Venezuela.

Therefore, the fall in the M proportion among women with college education seems to be a key factor in understanding the emerging retreat from childbearing in Latin America observed in recent years. Another key factor in understanding this trend is the growing numbers of women receiving a college education. In the age bracket 25-29, the percentage of women who attended college increased in the last two censuses by 18 points in Chile; 15 points in Colombia; 10 points in Venezuela; eight points in Argentina, Costa Rica, and Nicaragua; but only one to three points in Panama, Brazil, and Mexico (Table 2). In the 2000 wave of censuses, college-educated women in this age bracket range from low levels of 11% in Brazil and 14% in Mexico and Nicaragua, to highs of 32% in Argentina and Chile, and 27% in Colombia and Venezuela.

In a quick exercise to estimate the impact of the changing educational composition on M , we computed for the nine countries in Figure 5 a hypothetical M for the 2000 census wave, assuming that the educational composition was that of the 1990 census wave. The result of this exercise is presented in Table 2, and suggests that educational improvement might be responsible for all of the observed national change in M in Argentina, Brazil, Chile, and Venezuela; and for about half of the M change in Colombia, Costa Rica, Mexico, and Nicaragua. In other words, about half the decline in M in these four countries (and 80% in Panama)

comes from M reductions within educational groups, mostly among women with a college education, meaning that factors other than the improvement in women's education may also need to be considered if we are to fully understand the recent decline in M .

Figure 5. Motherhood proportion M at age 25-29 by education in the two most recent censuses, selected countries



If the recent enhancement in women's education explains a significant portion of the recent drop in the percentage of women who become mothers, why then did past educational improvements not produce a similar result? The answer might be that educational improvements in the past occurred mostly at the primary and secondary levels and, as Figure 5 suggests, in most countries there are only small differences in M at these lower educational levels. It is college education that seems to make a difference in the timing and level of transition to motherhood.

Table 2. Educational composition and M proportion in women aged 25-29 in the two most recent censuses

Country year	Educational composition of women				M proportion			
	None/ elementary	High school	College	Total	None / elementary	High school	College	Total
Argentina								
1991	50	25	25	100	0.81	0.65	0.43	0.67
2001	38	30	32	100	0.85	0.65	0.36	0.63
Percent M-change explained by education								100
Brazil								
1991	67	23	10	100	0.80	0.59	0.38	0.71
2000	60	29	11	100	0.82	0.58	0.31	0.69
Percent M-change explained by education								100
Chile								
1992	37	48	15	100	0.86	0.77	0.51	0.76
2002	23	45	32	100	0.88	0.81	0.47	0.72
Percent M-change explained by education								100
Colombia								
1993	56	32	12	100	0.89	0.81	0.51	0.82
2005	26	47	27	100	0.85	0.78	0.43	0.70
Percent M-change explained by education								63
Costa Rica								
1984	52	34	14	100	0.85	0.76	0.58	0.78
2000	48	31	21	100	0.84	0.76	0.43	0.73
Percent M-change explained by education								51
Mexico								
1990	56	32	12	100	0.87	0.74	0.50	0.78
2000	39	47	14	100	0.85	0.74	0.39	0.73
Percent M-change explained by education								51
Nicaragua								
1995	58	35	7	100	0.90	0.82	0.57	0.85
2005	52	34	14	100	0.88	0.81	0.52	0.80
Percent M-change explained by education								50
Panama								
1990	32	46	21	100	0.91	0.84	0.58	0.81
2000	31	45	24	100	0.89	0.81	0.44	0.75
Percent M-change explained by education								19
Venezuela								
1990	54	29	17	100	0.88	0.74	0.45	0.76
2001	46	27	27	100	0.88	0.76	0.44	0.73
Percent M-change explained by education								100

Discussion

This article documents the growing proportion of Latin American women in their twenties and early thirties who have not made the transition to motherhood. This emerging trend certainly means a shift in the region toward a later onset of childbearing, but it could also mean that some women are choosing to

forgo having children. Until recently, one of the singular demographic features of the region was that rapid and sustained fertility decline occurred without a concomitant change in the timing of union formation, or in the onset of childbearing. Early and almost universal childbearing persisted in spite of radical changes in the demographic, economic, social, and political spheres. There is, however, recent evidence that young cohorts are departing from this traditional pattern, and that Latin American women are waiting longer to become mothers. Although age at first birth had remained fairly stable since the 1970s, the data presented from the 2000 wave of censuses reveals that the proportion of women aged 25 to 29 who are still childless increased in almost all the countries analyzed. Data from vital statistics for Chile and Costa Rica also corroborate this new trend towards later motherhood.

The emerging trend in postponement of childbearing raises the question of whether this development will lead to an increase in the region in permanent childlessness –voluntarily chosen or because of age-related infecundity– as has been the case in European countries (González, and Jurado-Guerrero, 2006; Tanturri, and Mencarini, 2008). Our estimates of the proportion of women born in 1975 who will eventually become mothers are not conclusive: an important drop could take place if these women follow the traditional pattern of low rates of transition to motherhood beyond age 30, but no significant drop would take place if there is a recovery with high rates of transition to motherhood among women in their thirties, as in many European countries. Nevertheless, the increase in childlessness in the customarily prime ages of reproduction (25 to 29), even if transitory, deserves attention. It signals an important change in societies where the social imperative of motherhood has been traditionally strong, and where women who wished to postpone their first birth or remain childless were commonly stigmatized as selfish. Latin American cultural constructions of femininity have been strongly influenced by women's symbolic and social roles as mothers (Jelin, 1990). Nowadays, motherhood continues to play a central role in women's lives, but there has been an expansion of women's non-familial identities and roles, possibly rendering the deferment of childbearing an acceptable option.

Beyond the normative context, economic constraints and competing opportunities are also likely to play a major role in shaping decisions and behaviors regarding childbearing. In the face of enhanced female labor market prospects, increased economic insecurity, or rising conjugal instability, delayed childbearing might become an increasingly common strategy for dealing with uncertainty, as has occurred in Europe (Billari, Liefbroer, and Philipov, 2006). The impact of economic instability on family formation, as well as variations in the perception, tolerance,

and reactions to economic insecurity across educational strata and social contexts, deserve further attention (Bernardi, Klärner, and Lippe, 2008).

It is not evident whether these changes should be interpreted under the lens of the second demographic transition (van de Kaa, 1987). The validity of that framework to explain recent family changes in Latin America is at the center of contemporary debates (Quilodrán, 1999; García, and Rojas, 2001). Divergent views persist on whether to interpret recent family dynamics as an outcome of diffusion processes of new cultural patterns, or as a reflection of the lack of social cohesion within excluded sectors (Arriagada, 2002). Some demographic features of Latin American societies, such as the high prevalence of consensual unions or frequent union disruption, can be linked to either modernity or tradition, depending on the social group we focus on (Castro-Martín, 2002). The delayed onset of childbearing can, however, be unequivocally labelled as innovative behavior. Furthermore, our education-specific trend analysis has shown that it is precisely the highly educated strata who have taken the lead in this behavioral change. In fact, a great deal of the overall increase in childlessness among young adults is due to the upgraded educational composition of the population. We argue that major educational improvements in the past did not have a comparable impact on the timing of motherhood because they were focused on the universalization of primary education. In contrast, the more recent expansion of secondary education, and of college education in particular, is becoming a powerful force in restructuring the transition to adulthood and, consequently, the process of family formation (Grant, and Furstenberg, 2007). Yet in some countries, there is more to delayed fertility than a shift in the educational distribution of the population. In Nicaragua, Mexico, Costa Rica, Colombia, and Panama, for example, we have documented significant changes in the proportion of mothers within educational strata or, more precisely, within the college-educated group.

The multivariate analysis of a recent survey across 14 Latin American countries also reveals that high educational attainment is the most influential factor predicting childlessness among women of all ages. Hence, although our data do not allow us to link the recent increase in childlessness at young adulthood to “post-materialist” values (Lesthaeghe, and Moors, 1995; van de Kaa, 2001), such as the search for individual autonomy or gender equality, the fact that highly educated women are the main protagonists of the observed trend points towards a change in values and competing life priorities that discourage early childbearing.

It is not certain whether a delayed childbearing pattern will spread across the entire population. Latin America continues to display some of the highest levels of inequality in the world (Portes, and Hoffman, 2003), and the social processes that bring about family change in different social strata remain quite

heterogeneous. Furthermore, the large socioeconomic divide that characterizes many Latin American societies may act as an insurmountable barrier against the diffusion of social values regarding family, parenthood, and the optimal calendar for adulthood transitions. Yet it seems clear that the social imperative of early motherhood that prevailed during most of the 20th century has started to weaken, and that we are witnessing an increasing de-standardization of the life course.

There are multiple areas in which this research could be expanded in the future. One logical extension is to test cohort differentials regarding the timing and the determinants of the transition to motherhood within a life course framework, using retrospective birth histories from survey data. The problem is that, since childbearing postponement is an emerging trend, it might be visible only in recent data, and not many Latin American countries have conducted demographic surveys in recent years. An additional direction for analysis would be to examine the prevalence and correlates of childlessness among men, since socio-cultural expectations and competing opportunities shaping attitudes, decisions, and fertility behavior are fundamentally gendered.

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